



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL  
FRANKLIN COUNTY**

**CERTIFIED MAIL**

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049

**Application No: 01-08841**

**DATE: 4/8/2004**

GFS Chemicals Inc  
Dave Gannon  
851 McKinley Ave  
Columbus, OH 43222

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
309 South Fourth Street, Room 222  
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

cc: USEPA

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**Permit To Install  
Terms and Conditions**

**Issue Date: 4/8/2004  
Effective Date: 4/8/2004**

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**FINAL PERMIT TO INSTALL 01-08841**

Application Number: 01-08841  
APS Premise Number: 0125040109  
Permit Fee: **\$1200**  
Name of Facility: GFS Chemicals Inc  
Person to Contact: Dave Gannon  
Address: 851 McKinley Ave  
Columbus, OH 43222

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**851 McKinley Avenue  
Columbus, Ohio**

Description of proposed emissions unit(s):  
**Acid plant 1, 2, 3 and 4, building 2 reactor 1 and 2.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

#### 2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### 3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

**6. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**7. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

**8. Termination of Permit to Install**

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

**9. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio

Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

**10. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**11. Applicability**

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

**12. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**13. Source Operation and Operating Permit Requirements After Completion of Construction**

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

6

**GFS Chemicals Inc**  
**PTI Application: 01-08841**  
**Issued: 4/8/2004**

**Facility ID: 0125040109**

**14. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**15. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

**B. Permit to Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)  
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	64.8
Acid Gases	0.90
Chlorine	0.90

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - Acid Reactor 1-1000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

**2. Additional Terms and Conditions**

- 2.a The chlorine emissions from P001 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P001 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P001 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P001 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and

/ or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and conditions will ensure compliance with these limits.

## **B. Operational Restrictions**

1. The maximum annual production rate for P001 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P001 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P001 is in operation.

## **C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber , once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.

5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber

exceeding 135 degrees Fahrenheit.

2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen oxides emissions from P001 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A

- b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A

- c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

- d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.

- e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P001 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**GFS Chemicals Inc**  
**PTI Application: 01-08841**  
**Issued**

**Facility ID: 0125040109**

**Emissions Unit ID: P001**

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
2. This Air permit to Install (PTI) replaces PTI # 01-8087, as issued on January 25, 2001.

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - Acid Reactor 2-1000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

**2. Additional Terms and Conditions**

- 2.a The chlorine emissions from P002 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P002 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P002 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P002 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and / or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and

conditions will ensure compliance with these limits.

## **B. Operational Restrictions**

1. The maximum annual production rate for P002 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P002 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P002 is in operation.

## **C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber , once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the

Emissions Unit ID: **P002**

scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber exceeding 135 degrees Fahrenheit.

Emissions Unit ID: **P002**

2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen oxides emissions from P002 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.
  - d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.
  - e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record

keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P002 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
2. This Air permit to Install (PTI) replaces PTI # 01-8087, as issued on January 25, 2001.

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P007 - Acid reactor 3 - 1000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

**2. Additional Terms and Conditions**

- 2.a The chlorine emissions from P007 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P007 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P007 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P007 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and / or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and

conditions will ensure compliance with these limits.

## B. Operational Restrictions

1. The maximum annual production rate for P007 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P007 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P007 is in operation.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber, once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked

with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber exceeding 135 degrees Fahrenheit.

Emissions Unit ID: **P007**

2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen oxides emissions from P007 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.
  - d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.
  - e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record

keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P007 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
2. This Air permit to Install (PTI) replaces PTI # 01-8087, as issued on January 25, 2001.

## PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

### A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P008 - Acid Reactor 4 1,000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions.	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

### 2. Additional Terms and Conditions

- 2.a The chlorine emissions from P008 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P008 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P008 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P008 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and / or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and conditions will ensure compliance with these limits.

**B. Operational Restrictions**

1. The maximum annual production rate for P008 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P008 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P008 is in operation.

**C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber, once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked

Emissions Unit ID: **P008**

with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber exceeding 135 degrees Fahrenheit.
2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen

oxides emissions from P008 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

## E. Testing Requirements

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A

- b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A

- c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

- d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.

- e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record

Emissions Unit ID: **P008**

keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P008 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
2. This Air permit to Install (PTI) replaces PTI # 01-8087, as issued on January 25, 2001.

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P033 - Building 2 Reactor 1-1000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

**2. Additional Terms and Conditions**

- 2.a** The chlorine emissions from P033 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P033 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P033 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b** The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P033 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c** The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and / or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and

conditions will ensure compliance with these limits.

#### **B. Operational Restrictions**

1. The maximum annual production rate for P033 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P033 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P033 is in operation.

#### **C. Monitoring and/or Recordkeeping Requirements**

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber , once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the

Emissions Unit ID: **P033**

scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber exceeding 135 degrees Fahrenheit.

Emissions Unit ID: **P033**

2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen oxides emissions from P033 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.
  - d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.
  - e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record

keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P033 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)****A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P034 - Building 2 reactor 2-1000 gallon glass/steel reactor for manufacturing perchloric acid equipped with a scrubber and condenser for controlling chlorine and acid gas emissions	OAC rule 3745-31-05(A)(3)	Chlorine emissions shall not exceed 0.04 pound per hour.  Acid gas emissions shall not exceed 0.04 pound per hour.  Nitrogen oxide emissions shall not exceed 8.0 pounds per hour.  See A.2.a. below.

**2. Additional Terms and Conditions**

- 2.a The chlorine emissions from P034 shall not exceed 0.4 pound per batch and 0.15 ton per year. Acid gas emissions from P034 shall not exceed 0.4 pound per batch and 0.15 ton per year. Nitrogen oxide emissions from P034 shall not exceed 34.5 pounds per batch and 10.8 tons per year. The ton per year emissions are based on a maximum allowable annual production rate of 625 batches per year.
- 2.b The capture efficiency of the scrubber and condenser controlling chlorine and acid gas emissions from P034 shall be 100 % by weight and the control efficiency of the scrubber shall be at least 98% by weight.
- 2.c The hourly and batch emission limitations for this emissions unit were established to reflect the potential emissions. Therefore it is not necessary to develop record keeping and / or reporting requirements to ensure compliance with these limits. Therefore, the parametric monitoring of the control devices as established in the following terms and

conditions will ensure compliance with these limits.

## B. Operational Restrictions

1. The maximum annual production rate for P034 shall not exceed 625 batches per year.
2. The scrubber water flow rate shall be continuously maintained at a value of not less than 25 gallons per minute at all times while P034 is in operation.
3. The pH of the scrubbing liquid shall be continuously maintained in the range of 8 to 13.5.
4. The minimum air flow rate through the stack shall be at least 3000 actual cubic feet per minute during the reaction stage.
5. The condenser water flow rate shall be continuously maintained at a value of not less than 2 gallons per minute at all times while P034 is in operation.

## C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the number of batches produced each month.
2. The permittee shall properly install, operate and maintain equipment to sustain water flow in the scrubber at a rate greater than or equal to 25 gallons per minute (gpm). Monitoring equipment shall be interlocked with the reactor such that if flow is less than 25 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the scrubber may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible. The permittee shall collect and record the water flow in the scrubber, once per shift while the reactor is in use.
3. The permittee shall properly install, operate and maintain equipment to sustain water flow in the condenser at a rate greater than or equal to 2 gpm. Monitoring equipment shall be interlocked with the reactor such that if water flow in the condenser is less than 2 gpm the heat source of the reactor will shut down, thus causing the reaction to terminate. Water flow in the condenser may be monitored by tracking flow and/or pressure, whichever is deemed most technically feasible.
4. The permittee shall properly install, operate and maintain equipment to continuously monitor the pH of the scrubbing liquid. The permittee shall collect and record the pH of the scrubbing liquid, once per shift while the reactor is in use.
5. The permittee shall properly install, operate and maintain equipment to sustain airflow in the scrubber exhaust duct during the reaction stage. Airflow monitoring equipment shall be interlocked

with the reactor such that if airflow is less than 3,000 acfm in the scrubber exhaust duct the heat source of the reactor will shut down, thus causing the reaction to terminate.

6. The permittee shall operate and maintain a continuous temperature monitor which measures the temperature of the exhaust gases passing from the condenser to the scrubber. The temperature monitoring device shall be interlocked with the reactor such that if the gas stream passing from the condenser to the scrubber exceeds 135 degree Fahrenheit, the heat source of the reactor will shut down, thus causing the reaction to terminate. The permittee shall collect and record the temperature of the exhaust gases passing from the condenser to the scrubber, in degrees Fahrenheit, once per shift while the reactor is in use.

7. The permittee shall collect and record the following information each day:

- a. Each shutdown of the reactor due to the temperature of gas stream passing from the condenser to the scrubber exceeding 135 degree Fahrenheit.
- b. Each shutdown of the reactor due to the airflow in the scrubber exhaust falling below 3,000 acfm.
- c. Each shutdown of the reactor due to the water flow rate through the scrubber falling below 25 gpm.
- d. Each shutdown of the reactor due to flow in the condenser falling below 2 gpm.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation(excursion) reports that identify all periods of time during which this emissions unit was shut down due to the following:
  - a. The scrubber water flow rate not being maintained within the required range.
  - b. The pH of the scrubbing liquid not being maintained within the required range.
  - c. The condenser water flow rate not being maintained within the required range.
  - d. The airflow in the scrubber exhaust falling below 3,000 acfm .
  - e. The temperature of the exhaust gases passing from the condenser to the scrubber exceeding 135 degrees Fahrenheit.

Emissions Unit ID: **P034**

2. The permittee shall submit annual reports which specify the total chlorine, acid gas and nitrogen oxides emissions from P034 for the previous calendar year in tons per year. These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emission limitation(s) in Section A.I of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation: Chlorine emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - b. Emission Limitation: Acid gas emissions shall not exceed 0.04 pound per hour and 0.4 pound per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 26A
  - c. Emission Limitation: Nitrogen oxide emissions shall not exceed 8.0 pounds per hour and 34.5 pounds per batch.  
  
Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.
  - d. Emission Limitation: Chlorine emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the chlorine emissions in pounds/batch obtained from the most recent stack test.
  - e. Emission Limitation: Acid gas emissions shall not exceed 0.15 ton per year.  
  
Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record

keeping requirements in section C.1.) with the acid gas emissions in pounds/batch obtained from the most recent stack test.

- f. Emission Limitation: Nitrogen oxide emissions shall not exceed 10.8 tons per year.

Applicable Compliance Method: Compliance with the ton/yr emission limitation shall be determined by multiplying the actual number of batches produced in a year ( from record keeping requirements in section C.1.) with the nitrogen oxide emissions in pounds/batch obtained from the most recent stack test.

- g. Emission Limitation: The control efficiency of the scrubber controlling chlorine and acid gas emissions from emissions unit P034 shall be at least 98%, by weight.

Applicable Compliance Method: If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and 7E.

**F. Miscellaneous Requirements**

1. Modeling to demonstrate compliance with the Ohio EPA's Air Toxic Policy was not necessary since the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant that has a listed TLV to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.